

Name \_\_\_\_\_

## The Magical Dance of Meiosis: Creating Life in a Unique Way

### Open-Ended Response Answer Key

1. In a world without meiosis, genetic diversity would be severely limited, leading to reduced adaptability and potentially the extinction of many species.
2. Meiosis primarily produces gametes for sexual reproduction, while mitosis is responsible for growth, repair, and tissue maintenance in the body. Mitosis occurs in various body cells, while meiosis occurs only in reproductive organs.
3. Genetic diversity resulting from meiosis can be advantageous for species facing environmental changes. For example, in a changing climate, species with diverse traits may have a better chance of survival.
4. Advances in genetic engineering may allow scientists to manipulate meiosis for specific purposes, such as creating custom-made organisms or treating genetic diseases. However, ethical considerations and potential consequences need to be carefully addressed.

